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**JAN 25 1994**

**FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY**

*Jay C. Keithley*  
Vice President  
Law and External Affairs  
United Telephone Companies

January 25, 1994

Mr. William F. Caton, Acting Secretary  
Federal Communications Commission  
1919 M Street, N.W., Room 222  
Washington, D.C. 20036

RE: In the Matter of Guidelines for Evaluating the Environmental Effects of  
Radiofrequency Radiation, ET Docket No. 93-62

Dear Mr. Caton:

Attached are the original and four copies of the Comments of Sprint Cellular Company  
in the matter referenced above.

Sincerely,

A handwritten signature in cursive script that reads "Jay C. Keithley".

Jay C. Keithley  
Vice President  
Law and External Affairs

Attachment

JCK/mlm

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A handwritten number "254" in cursive script.

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JAN 25 1994

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
 Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION  
 OFFICE OF SECRETARY

In the Matter of

Guidelines for Evaluating the  
 Environmental Effects of  
 Radiofrequency Radiation

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 ) ET Docket No. 93-62  
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**COMMENTS OF SPRINT CELLULAR COMPANY**

Sprint Cellular Company ("Sprint") hereby submits its comments on the above-referenced Notice of Proposed Rulemaking ("Notice").<sup>1</sup> The Notice seeks comments on its proposal "to amend and update the guidelines and methods used for evaluating the environmental effects of radiofrequency (RF) radiation from FCC regulated facilities."<sup>2</sup>

**I. SUMMARY**

Sprint supports the Commission's proposed adoption of the 1992 ANSI/IEEE RF exposure guidelines for use in evaluating the effects of RF radiation on both workers and the general public. Adoption of guidelines that reflect more up to date scientific data<sup>3</sup> is, in Sprint's judgment, in the best interests of both the telecommunications industry and the public. At the same time, however, Sprint has concerns, detailed below,

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1. In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, ET Docket No. 93-62, Notice of Proposed Rulemaking, released April 8, 1993.

2. Id. at para. 1.

3. Id. at para. 9.

regarding the impact of the revised guidelines on the cellular industry, that it urges the Commission to address fully in its promulgation of these new rules.

## II. INTRODUCTION

The National Environmental Policy Act of 1969 (NEPA), requires the Commission to ensure that its licensing and other regulatory actions do not adversely affect the human environment. Accordingly, in 1985 the Commission adopted C95.1-1982 ("the 1982 ANSI/IEEE guidelines"), RF exposure guidelines authored by the Institute for Electrical and Electronic Engineers (IEEE) and adopted by the American National Standards Institute (ANSI). The Commission's rules require that applicants for certain facilities prepare an Environmental Assessment, which is used to determine whether RF radiation from the facility constitutes a hazard to the human environment, per the limits expressed in the above guidelines. Many "low-power, intermittent, or normally inaccessible"<sup>4</sup> transmitters and facilities (including cellular base stations and microwave facilities) have been categorically excluded from this requirement, based on data showing that under normal and routine use they would not cause exposures in violation of the 1982 guidelines. Also excluded are low power hand-held devices (including portable cellular telephones), based

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4. Id. at para. 5.

on a finding that laboratory measurements confirm "a certain Specific Absorption Rate (SAR) or if the RF input power is seven watts or less."<sup>5</sup>

In the instant proceeding, the Commission proposes to revise its rules by adopting C95.1-1992 (the 1992 ANSI/IEEE guidelines or standard). These guidelines, based on more current scientific studies, specify frequency-dependent exposure limits for two separate environments -- "controlled" (generally workers) and "uncontrolled" (the general public). Further, low power hand held devices that transmit at frequencies of 1500 MHz or less can qualify for a categorical exclusion if the device's radiated power falls within frequency-dependent limits (the higher the frequency, the lower the allowable exposure), and its radiating structure is more than 2.5 cm from the body, or the device complies with SAR guidelines.

**III. THE CATEGORICAL EXCLUSIONS FOR CELLULAR BASE STATIONS AND MICROWAVE FACILITIES SHOULD BE MAINTAINED.**

**A. Normal and routine operations of cellular base stations and microwave facilities would not cause exposures in violation of the 1992 standards.**

The notice asks for comment on the appropriateness, under the new, more restrictive guidelines, of maintaining existing categorical exclusions and whether they should be redefined. Sprint supports retention of the existing categorical exclusions for cellular base stations and microwave facilities.

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5. Id. at para. 14.

The rationale for excluding these facilities from environmental processing -- i.e. that calculations and measurement data indicate these facilities would not cause exposures in violation of 1982 standards -- is still valid when applied to 1992 standards. Sprint has, through outside consultants, conducted its own RF exposure studies for proposed cellular facilities, incorporating both cellular and microwave facilities. In anticipation of the Commission's adoption of the 1992 guidelines, these standards were used for comparison purposes. Maximum possible RF exposure was measured. The cumulative human exposure in all areas accessible to the public was found to be well below the permissible limit for uncontrolled environments. In addition, the studies all concluded that the exposure limits for workers in uncontrolled areas were within safe ranges as well.

**B. Licensees Should Be Able To Certify That Processes Have Been Established To Preclude Excessive Worker Exposure.**

The Notice also asks whether categorical exclusions should be limited to situations where there is no possibility of excessive worker exposure, as defined by the 1992 guidelines. An example of a situation which might not qualify for exclusion under the above test: a relatively high power site where workers are in the immediate vicinity.

Sprint believes that it would be impractical to require cellular licensees to submit Environmental Assessments for certain parts of their facilities. The likelihood of such excessive exposure within cellular facilities is remote.

Furthermore, the facility can be shut down when necessary to protect worker safety. Instead of requiring environmental processing in such cases, which imposes burdens on both the licensee and the Commission, the Commission should allow licensees to certify that procedures have been adopted to preclude worker exposure in excess of the limits for controlled environments. Further, Sprint recommends that the FCC establish guidelines for such procedures.

**C. Eliminating the Categorical Exclusion Would Impose Severe Burdens on Licensees.**

The Notice seeks comment on the impact on licensees of eliminating the exclusion from its rules. Sprint submits that such action would have a significant negative impact on cellular licensees' ability to build out their systems in a timely fashion. It would impose costly and time consuming obligations which Sprint believes are unnecessary.

If the Commission should eliminate the exclusion, Sprint believes that licensees should be able to demonstrate compliance with the standard through predictive calculations instead of field measurements. Prediction methods for absolute power density are reliable for far-field exposure situations.<sup>6</sup> Furthermore, the field measurement task would be burdensome.

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6. Federal Communications Commission OST Bulletin No. 65, Evaluating Compliance with FCC - Specified Guidelines for Human Exposure to Radiofrequency Radiation, October 1985, p.7.

Certification that procedures are in place to prevent excessive worker exposure, as mentioned above, should also be permitted.

**IV. THE TERMS "CONTROLLED" AND "UNCONTROLLED" ENVIRONMENTS SHOULD BE MORE FULLY DEFINED.**

The 1992 guidelines define controlled environments as "locations where there is exposure that may be incurred by persons who are aware of the potential for exposure as a concomitant of employment, by other cognizant persons, or as the incidental result of transient passage through areas where analysis shows the exposure levels may be above [the exposure and induced current levels permitted for the general public but not those permitted for persons aware of the potential for exposure]" and defines uncontrolled environments as "locations where there is the exposure of individuals who have no knowledge or control of their exposure. The exposures may occur in living quarters or workplaces where there are no expectations that the exposure levels may exceed [the exposure and induced current levels permitted for the general public]."7

Although the guidelines specify definitive limits for allowable RF exposures for the two environments, they are vague in defining the components of these environments. For example, what is "incidental result of transient passage" and how would it be monitored? What is included in the uncontrolled category

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7. Notice at para. 12.

besides living quarters and workplaces? How broadly or narrowly should these two areas be defined?

Sprint believes that the concept of different levels of protection for controlled and uncontrolled environments is a sound one, but the very concept is what makes precise demarcation of the boundaries between the two categories imperative. Sprint urges the Commission to issue comprehensive guidelines to define controlled and uncontrolled environments more fully and to assist licensees in limiting the public's access to controlled environments.

#### **V. EXCLUSION OF LOW POWER DEVICES.**

Although the 1992 standards, like the 1982 standards, exclude low power hand held devices from environmental processing, based on either RF power or the SAR, there are significant differences. For one thing, the 1982 exclusion is based on "input" power whereas the 1992 exclusion is based on "radiated" power. Sprint supports this change, since radiated power has a more direct correlation than input power has with the environmental effects in question.

Another difference in the 1992 standard is the introduction of a frequency-dependent formula to set exposure limits. Based on the formula, cellular portable handsets, which operate at 824-850 MHz, would be excluded if they operate at .74 watts or less. This would include currently licensed cellular devices, which operate at 0.6 watts or less. The 1992 exclusion



does not apply, however, to devices whose radiating structure is maintained 2.5 cm from the human body, unless the SAR threshold is met. The SAR threshold established in the 1992 standard is 1.6 Watts per kilogram for a localized exposure of 30 minutes or more.<sup>8</sup> CTIA, a trade association of cellular companies, has published the results of studies that indicate the SAR from a portable cellular phone is approximately 0.45 Watts/kilogram, 3 1/2 times below the standard. This compares with SAR measurements of 1.5 Watts/kilogram for CB radio and 3.6 Watts/kilogram for police radio.<sup>9</sup>

Finally, the 1992 guidelines do not contemplate exclusions for low power devices that operate at frequencies above 1500 MHz, probably because they were not applicable at the time. However, in a few months the FCC must begin granting licenses for PCS services, the broadband segment of which will operate at 1850-2200 MHz. Anticipating this, the Commission has requested a formal interpretation from the IEEE as to whether the formula used to determine the exclusion could be extrapolated to 2200 MHz, to cover hand held PCS devices.<sup>10</sup> Sprint applauds this

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8. IEEE C95.1-1991, IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz, 4.2.2(a) (page 17) and Table 2 Part A (page 15).

9. Safe Cellular Phones, Pamphlet published by CTIA.

10. In The Matter of Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, RM-7140, RM-7175, RM-7618, Second Report and Order, released October 22, 1993.

action. Having exclusion guidelines in place will greatly assist the manufacturers of PCS devices.

**VI. CONCLUSION.**

Sprint supports the Commission's initiative to update its guidelines for permissible levels of RF exposure. The 1992 ANSI/IEEE standard provides a sound basis for new Commission rules. Sprint believes that maintaining the categorical exclusion for cellular and microwave facilities, refining the standard's definition for controlled and uncontrolled environments, and expanding the low power exclusion to the frequency level authorized for PCS services, will be beneficial both for the cellular and future wireless industry and for their customers.

Respectfully submitted,

SPRINT CELLULAR COMPANY

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Its Attorneys

January 25, 1994

## **CERTIFICATE OF SERVICE**

I, Melinda L. Mills, hereby certify that I have on this 25th day of January, 1994, sent via U.S. First Class Mail, postage prepaid, or Hand Delivery, a copy of the foregoing "Comments of Sprint Cellular Company" in the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, ET Docket No. 93-62, filed this date with the Acting Secretary, Federal Communications Commission, to the persons listed on the attached service list.

  
Melinda L. Mills

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**\* Indicates Hand Delivery**